

NEW STONEFLIES AND RECORDS FROM THE PACIFIC
COAST OF THE UNITED STATES

STANLEY G. JEWETT, JR.

Portland, Oregon

Since publication of my two papers (Jewett, 1959, 1960) covering the Pacific Coast stoneflies, new distributional and taxonomic data have been accumulated. This paper includes such information for fifteen species, five of which are described as new.

I very much appreciate the kindness of the following individuals for sending material for study: Miss Hilary A. Hacker, of San Francisco, Mr. Hugh B. Leech, California Academy of Sciences, and Dr. Dana L. Abell, Dartmouth College.

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The material recorded is in my collection (SGJ) or that of the California Academy of Sciences (CAS).

NEMOURA CORNUTA Claassen

This species, common British Columbia and Oregon, is added to the known Californian stonefly fauna with the following record: Shasta Springs, head of Sacramento River, Siskiyou County, June 24, 1960, S. G. Jewett, Jr., 1 male, 4 females (CAS).

LEUCTRA PURCELLANA Neave

The following record extends the range of this species from British Columbia to northeastern Oregon: Wallowa River above Wallowa Lake, Wallowa County, May 31, 1960, S. G. Jewett, Jr., female (SGJ).

CAPNIA CONFUSA Claassen

This species, common in the Rocky Mountains from Alberta to Wyoming, is now recorded from Oregon: Pine Creek, near Halfway, Baker County, March 12, 1961, S. G. Jewett, Jr., 4 males, 2 females (SGJ).

Capnia disala Jewett, new species

Female.—Length of body (female holotype) 5.5 mm. Similar in general morphological features, including sternal sclerotization, to most other species in genus except apterous. Body and appendages heavily sclerotized, dark brown on upper surfaces, lighter below. Broad, unsclerotized stripe across tergites 2 through 8. Posterior portion of eighth sternite modified to form well-sclerotized broad subgenital plate, Figure 1, that occupies about $\frac{3}{4}$

width of sternite and extends beyond lateral borders. Ninth sternite unmodified and heavily sclerotized.

Holotype female.—PARKER CREEK, MARYS PEAK, BENTON COUNTY, OREGON, May 18, 1958, Hilary A. Hacker. Deposited in the collection of the California Academy of Sciences.

This species is distinguished from other described members of the genus by the combination of the shape of the female subgenital plate and in being apterous. Apparently it is unique also in having complete sclerotization of the first abdominal tergite.

Capnia ensicala Jewett, new species

Male.—Length of body (male holotype) 6.5 mm. Similar in general morphological features, including sternal sclerotization, to most other species in the genus except that it is apterous. Body and appendages heavily sclerotized, dark brown on upper surfaces, lighter below. First eight abdominal segments without special modification; ninth sternite without lobe; no humps or knobs on any tergites; medially shallow, lightly-sclerotized groove across tergites 8 and 9. Supra-anal process, Figure 2, reflexed, long, pointed, rather heavily built, and reaching to posterior border of eighth tergite, 1.3 mm. in length.

Holotype male.—BOSTON HARBOR, NINE MILES NORTH OF OLYMPIA, THURSTON COUNTY, WASHINGTON, January 3, 1959, Hilary A. Hacker.

In my key (Jewett, 1959: 43) to the males of *Capnia* occurring in the Pacific Northwest, this species would go to *zukei* Hanson from which it differs in being apterous and in having a more heavily built supra-anal process.

While searching for Carabid beetles Miss Hacker found this and the foregoing species crawling near the edge of small streams.

PTERONARCELLA BADIA (Hagen)

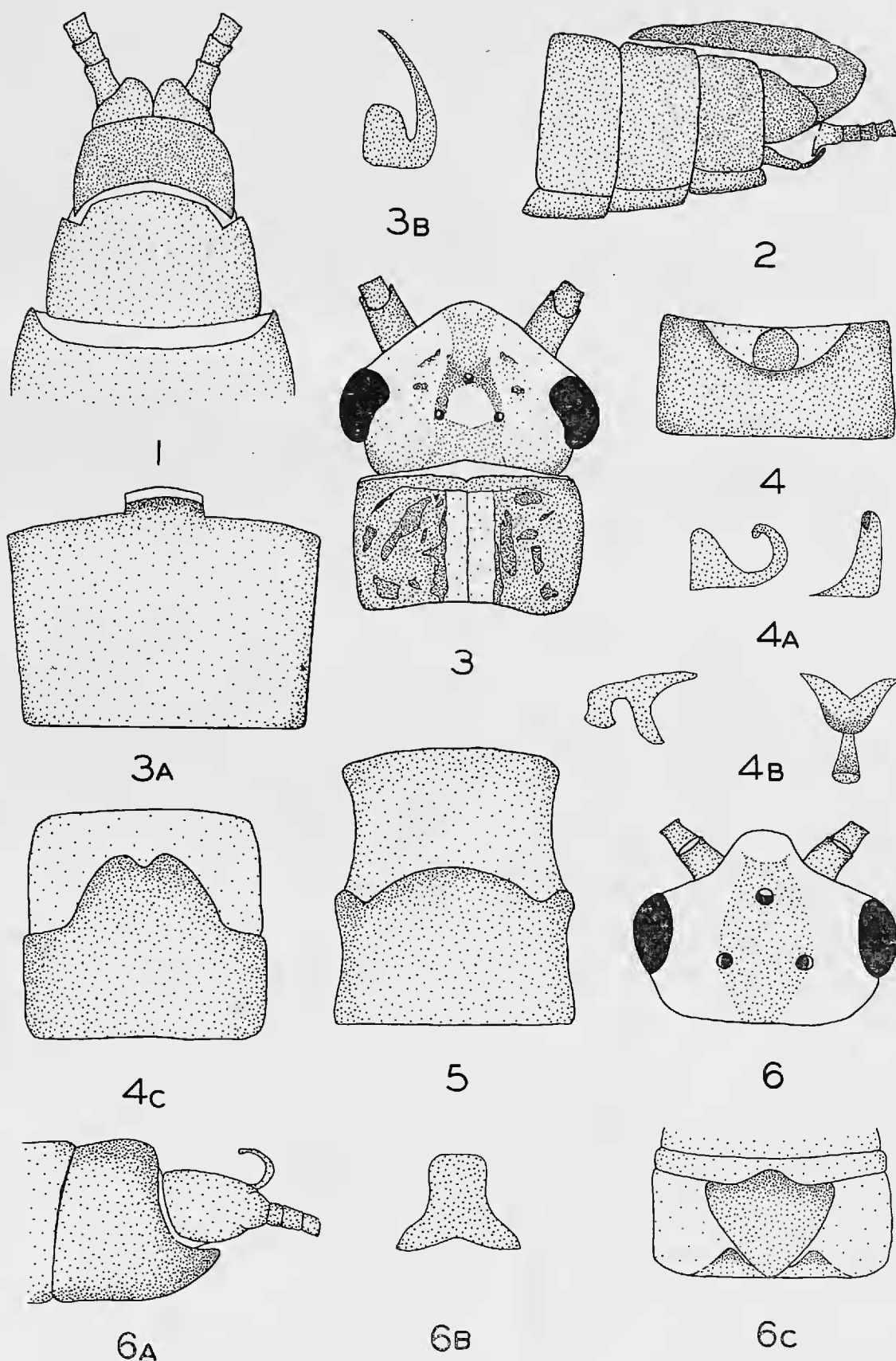
This species, common in the Rocky Mountains, is added to the known stonefly fauna of the Pacific Northwest with the following records: Mouth of North Pine Creek, near Halfway, Baker County, Oregon, May 11-14, 1959, S. G. Jewett, Jr., 2 males, 3 females (SGJ). Near mouth, Wildhorse River, Adams County, Idaho, May 26, 1959, S. G. Jewett, Jr., 2 males, 3 females, 5 exuviae (SGJ).

ARCYNOPTERYX PICTICEPS Hanson

Previously known from British Columbia and Oregon, this species is now recorded for central California: Lee Vining, Mono

EXPLANATION OF FIGURES

Fig. 1, *Capnia disala* Jewett, subgenital plate of holotype female. Fig. 2, *Capnia ensicala* Jewett, male genitalia of holotype, lateral view. Fig. 3,



Isoperla acula Jewett, head and pronotum; 3A, eighth sternite of male; 3B, subanal lobe of male. Fig. 4, *Isoperla adunca* Jewett, eighth sternite of male; 4A, subanal lobe of male; 4B, aedeagal structure; 4C, subgenital plate of female. Fig. 5, *Isoperla rainiera* Jewett, subgenital plate of female. Fig. 6, *Alloperla pastina* Jewett, head; 6A, male genitalia, lateral view; 6B, dorsal view of tip of supra-anal process; 6C, subgenital plate of female.

County, June 1, 1936, Harry P. Chandler, female (CAS).

RICKERA SORPTA (Needham and Claassen), new combination

1925. *Perla sorpta* Needham and Claassen, p. 90.

1952. *Isogenus sorpta*, Ricker, p. 131.

1954. *Rickera venusta* Jewett, p. 176. *New synonymy*.

Study of additional material of *Rickera venusta* indicates that it is a synonym of *Perla sorpta* Needham and Claassen. Dr. William E. Ricker kindly compared Oregon material in my collection with an Oregon specimen that the late Dr. T. H. Frison compared with the type of *sorpta* and agrees that it is conspecific. In Ricker's illustrations for this species (1952: 129), the head pattern is similar to specimens which I have examined, but the broad central stripe of the prothorax is normally of the same yellow color as the head. Female specimens which I have studied have subgenital plates like that illustrated by Needham and Claassen (1925: 341) for the type of *sorpta*.

ISOGENUS (ISOGENOIDES) FRONTALIS COLUBRINUS Hagen

As anticipated, this species, common to the northward, has now been taken in California: Bank of Sacramento River, near Red Bluff, Tehama County, April 12, 1960, S. G. Jewett, Jr., male, 11 exuviae (CAS).

ISOGENUS (CULTUS) PILATUS (Frison)

Another species, common from British Columbia to southern Oregon, is now known to occur in California: American River, at Kyburz, El Dorado County, June 19, 1960, S. G. Jewett, Jr., male (CAS); Richardson Springs, Glenn County, April 4, 1957, S. G. Jewett, Jr., female (CAS); Truckee, Nevada County, June 19, 1927, Helen Van Duzee, 2 females (CAS).

Isoperla acula Jewett, new species

Male:—Length of wing tips 12 mm. Length of body 10 mm. General color brownish yellow with distinctive head and pronotal color pattern, (Fig. 3A). Median posterior area of ninth tergite with patch of short bristles. Subanal lobes reflexed, long, cylindrical, sharply pointed, (Fig. 3B). Aedeagus with longitudinal, apparently cylindrical sclerotized structure that is difficult to observe because of light pigmentation.

Holotype male and two paratype males.—DRY CREEK, SEVEN MILES NORTHEAST OF ACADEMY, ELEVATION 800 FEET, FRESNO COUNTY, CALIFORNIA, April 19, 1955, D. L. Abell. An additional male paratype with the same data except April 16, 1955. Holotype

deposited in the collection of the California Academy of Sciences, paratypes in my collection.

This species differs from described members of the genus in the combination of the head and pronotal color pattern, the shape and sclerotization of the lobe on the eighth sternite, and in other details of the male genitalia. The subanal lobes are similar to those of *Isoperla marmorata* (Needham and Claassen), but the species is readily differentiated by the wholly hyaline wings.

Isoperla adunca Jewett, new species

General color of body, appendages, and wings yellow brown, abdomen lighter. Head and pronotum without distinctive pattern, generally pigmented brown, darkest in ocellar area. Wings uniformly brownish.

Male.—Length to wing tips 9-10 mm. Length of body 8-9.5 mm. Eighth sternite with distinctive lobe, (Fig. 4), similar to that of *Isoperla denningi* Jewett. Hairs on tergites 8 and 9 unmodified. Subanal lobes strongly reflexed, blunt tips cylindrical, almost curled. Aedeagus with small distinctive sclerotized process, (Fig. 4B), less than 0.3 mm. in length.

Female.—Length to wing tips 9-10.5 mm. Length of body 8-9.5 mm. Similar to male in general features, somewhat larger. Subgenital plate, (Fig. 4C), extended about length of eighth sternite, well sclerotized, distal border broadly notched. Sternites 9 and 10 conspicuously less sclerotized than eighth.

Holotype male, allotype female and 4 male and 7 female paratypes, FIVE MILES EAST OF MT. HAMILTON, SANTA CLARA COUNTY, CALIFORNIA, May 31, 1949. An additional male specimen, not included in the type series, has the following data: Trail, Jackson County, Oregon, July 2, 1941, RMY. Holotype, allotype, and paratypes in the collection of the California Academy of Sciences, paratypes in my collection.

ISOPERLA RAINIERA Jewett

This species occurs commonly in a small stream near timberline on Mt. Hood, Oregon, where I have taken a series of both sexes and the nymphs.

The female may be described as follows: Similar in color and other morphological features to the male, but somewhat larger in size. The subgenital plate (Fig. 5) is extended about half the length of sternite 8, evenly rounded.

Allotype female, TRIBUTARY OF SALMON RIVER, MT. HOOD, CLACKAMAS COUNTY, OREGON, July 14, 1956, S. G. Jewett, Jr. Deposited in the collection of the California Academy of Sciences.

This species is close in appearance to *Isoperla sordida* Banks, both usually being quite dark with the interocellar area blackish.

The last two abdominal segments of fresh material of *sordida* is yellowish, of *rainiera*, brownish like the other segments. The subgenital plates of the females are similar but that of *rainiera* is longer.

UTAPERLA SOPLADORA Ricker

This rarely-collected but rather widespread species is now recorded from Oregon: Pine Creek, near Halfway, Baker County, May 27, 1959, S. G. Jewett, Jr., male (SGJ).

Alloperla (Sweltsa) *pastina* Jewett, new species

General color yellow brown. Head, (Fig. 6), with distinctive dark pattern, a large dark area occupying the ocellar area and extending anteriorly across most of clypeus. Pronotum margined in black and with many dark rugosities. Abdomen with dorsal stripe medially on tergites 1 through 9. Body with considerable brown pigment, especially appendages.

Male.—Length to wing tips 8.5 mm. Length of body 7 mm. Supra-anal process arising from deep groove in tenth tergite, strongly reflexed, thin in lateral view, tip broad, flattened horizontally, forming pair of stubby horns distally, (Fig. 6A and 6B). Terminal tergites without knobs.

Female.—Length to wing tips 8 mm. Length of body 6mm. Subgenital plate, (Fig. 6C), produced medially to narrow, rounded tip, distinctly sclerotized, rather heart-shaped with small triangular sclerotized area either side basally.

Holotype male and two paratype males, SAVAGE RAPIDS DAM, NEAR GRANTS PASS, JOSEPHINE COUNTY, OREGON, May 4, 1959, S. G. Jewett, Jr. Allotype female and paratype female, near mouth of Rogue River, Curry County, July 3, 1949, S. G. Jewett, Jr. Holotype and allotype deposited in collection of the California Academy of Sciences, paratypes in my collection.

This species differs from other described members of the genus in the distinctive head pattern and in details of the genitalia of each sex.

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